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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/669,954	09/23/2003	Anand P. Narayan	TCOM0007	4754

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EXAMINER	
TRAN, KHAI	

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/669,954	NARAYAN ET AL.	
	Examiner	Art Unit	
	KHAI TRAN	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13,26-38,57-59,61-74 and 80-85* is/are pending in the application.

4a) Of the above claim(s) *14-25,39-56,60 and 75-79* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13,26,27,33-35,57,58,59,61-74 and 80-85* is/are rejected.

7)☒ Claim(s) *28-32 and 36-38* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/18/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant has elected group I comprising claims 1-13, 26-38, 57-59, 61-74, and 80-85; and cancelled group II comprising claims 14-25, 39-56, 60, 75-79.

Claim Objections

2. Claims 9, 26 are objected to because of the following informalities: Appropriate correction is required.

Regarding claim 9, line 2, the phrase "signal path in **said** to cancel" is incomplete, as set forth in claim 10, line 2.

Regarding claim 26, line 2, the phrase "populating **a** to cancel…" is incomplete.

Applicant reviews carefully the claim language because many claims are incomplete.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagarajan et al (US 2005/0180364 A1).

Regarding claim 1, Nagarajan et al disclose a method for selectively enabling signal interference cancellation, comprising: identifying a plurality of signal paths; for a set of said identified signal paths, determining an observed signal strength; identifying at least one of said signal paths as a potential interferer based at least in part on the observed signal strength (see paragraphs 0043], [0060]); and creating at least a first interference cancelled signal stream ([0042], [0046]).

Regarding claim 2, Nagarajan et al further disclose the method comprising: determining whether providing said at least a first interference cancelled signal stream to at least a first signal processor will improve a signal to noise ratio of at least a first signal path assigned to the at least a first signal processor ([0090]), and

in response to determining that the at least a first interference cancelled signal stream will improve a signal to noise ratio of the signal path at least a first signal stream assigned to the at least a first signal processor, providing the at least a first interference cancelled signal to the at least a first signal processor ([0090], [0096], [0098]).

Regarding claim 3, Nagarajan et al further disclose the method comprising: determining whether providing the at least a first interference cancelled signal stream to the at least a first signal processor will improve a signal to noise ratio of at least a first signal path assigned to the at least a first signal processor, in response to determining that the at least a first interference cancelled signal stream will not improve a signal to noise ratio of the at least a first signal path assigned to the at least a first signal

processor, discontinuing the creating at least a first interference cancelled signal stream ([0090], [0096], [0098]).

Regarding claim 4, Nagarajan et al further disclose method comprising: providing a non-interference cancelled signal stream to the at least a first signal processor ([0009]).

Regarding claim 5, Nagarajan et al disclose wherein the set of identified signal paths comprises a set of assigned signal paths ([0062], [0068]).

Regarding claim 6, Nagarajan et al disclose wherein the set of assigned signal paths is obtained from a demodulation path list ([0062], [0068]).

Regarding claim 7, Nagarajan et al disclose wherein the identifying a plurality of potential interferers comprises identifying a first number of signal paths having at least a first signal strength ([0060], [0063]).

Regarding claim 8, Nagarajan et al disclose listing the potential interferers in a candidate to cancel list ([0062]).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 9-13, 26-27, 33-35, 57-58, 59, 61-68, 69-72, 73-74, 80-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagarajan et al (US 2005/0180364 A1) in view of Bruckert et al (U.S. Pat. 5,894,500 from the IDS submitted by Applicant).

Regarding claim 9, Nagarajan et al fail to disclose a step of updating a to cancel list by replacing a signal path in said to cancel list having a signal strength that is less than a signal strength of one of the potential interferers in the candidate to cancel list with the one of the potential interferers.

Bruckert et al disclose a step of updating a to cancel list by replacing a signal path in said to cancel list having a signal strength that is less than a signal strength of one of the potential interferers in the candidate to cancel list with the one of the potential interferers (col. 3, lines 37-65). It would have been obvious to one having ordinary skill in the art at the time the invention was made to list the potential interferers in the cancel list comprising candidates for cancel interference as taught by Bruckert et al into the teachings of Nagarajan et al. The motivation would cancel uncorrelated noise from composite signal as taught by Bruckert et al in (col. 3, lines 50-65).

Regarding claim 10, Bruckert et al disclose a step of updating a channel determination list by entering signal paths from said to cancel list in said channel determination list (col. 3, lines 37-65).

Regarding claim 11, Bruckert et al disclose a step of storing an identity of the plurality of signal paths in said channel to create a survey path list; providing an interference canceled signal stream to a searcher element; and updating said survey path list (a multi-path identifier 303, col. 5, lines 43-49).

Regarding claim 12, Bruckert et al disclose a step of storing an identity of said plurality of signal paths to create a survey path list; providing an interference canceled signal stream to a correlator element; and updating said survey path list (a multi-path identifier 303, col. 5, lines 43-49).

Regarding claim 13, Bruckert et al disclose a step of storing an identity of said at least a first interference cancelled signal (a multi-path identifier 303, col. 5, lines 43-49).

Regarding claim 26, Nagarajan et al disclose a method for selecting a signal interference cancellation scheme (see Figure 6, a interference selector 602.1-602.M, and [0060], [0113]). Nagarajan et al disclose a demodulating finger (Rake fingers as shown in Figures 1A and 1B). Nagarajan et al fail to disclose steps of populating a to cancel list with an identify of at least a first signal path that has been identified as an interfering signal path; and establishing a connection between a demodulating finger and one of a raw signal stream and an interference cancelled signal stream based on an entry in said to cancel list.

Bruckert et al disclose steps of populating a to cancel list with an identify of at least a first signal path that has been identified as an interfering signal path; and establishing a connection between a demodulating finger and one of a raw signal stream and an interference cancelled signal stream based on an entry in said to cancel list (col. 3, lines 37-65). It would have been obvious to one having ordinary skill in the art at the time the invention was made to list the potential interferers in the cancel list comprising candidates for cancel interference as taught by Bruckert et al into the

teachings of Nagarajan et al. The motivation would cancel uncorrelated noise from composite signal as taught by Bruckert et al in (col. 3, lines 50-65).

Claim 27 is similar to claim 9. Therefore, claim 27 is rejected under a similar rationale.

Regarding claim 33, Bruckert et al disclose wherein a raw signal stream is provided to a first demodulating finger and an interference cancelled signal stream is provided to a second demodulating finger (see Figure 4).

Claim 34 is similar to claims 10-12. Therefore, claim 34 is rejected under a similar rationale.

Regarding claim 35, Bruckert et al disclose a step of updating a signal feed list, wherein said signal feed list identifies for each demodulating finger a provided signal (col. 3, lines 37-65).

Claim 57 is similar to claims 1, 7-9, and 26. Therefore, claim 57 is rejected under a similar rationale.

Claim 58 is similar to claims 1, 7-9, and 26. Therefore, claim 57 is rejected under a similar rationale.

Claim 59 is similar claims 1, 57. Therefore, claim 59 is rejected under a similar rationale.

Claim 61 is similar to claim 1. Therefore, claim 61 is rejected under a similar rationale.

Regarding claim 62, Nagarajan et al disclose a step of producing an interference cancelled signal stream, wherein said at least one signal path identified as a potential interferer is cancelled from said signal producing an interference cancelled stream ([0041], [0060]).

Regarding claims 63-64, Nagarajan et al disclose steps of correlating said interference cancelled signal stream with a reference signal; and in response to a strength of a desired signal having a strength that is not improved as a result of using said interference cancelled signal, providing a signal including said at least one signal path to a demodulation finger assigned to demodulate said desired signal; and correlating said interference cancelled signal stream with a reference signal; and in response to a strength of a desired signal path increasing as a result of creating said interference cancelled signal stream, providing said interference cancelled signal stream to a demodulating finger assigned to demodulate said desired signal path ([0101], [0102]).

Claims 65-68 are similar to claims 1-3. Therefore, claims 65-68 are rejected under a similar rationale.

Claims 69-72 are similar to claims 26-27, 34-35. Therefore, claims 69-72 are rejected under a similar rationale.

Regarding claims 73-74, claims 73-74 are similar to claims 1, 5, 6-7. Nagarajan et al also disclose searching said interference cancelled signal stream, from which the at least one potentially interfering signal path has been removed, for each PN offset

having a corresponding signal path possessing at least one of (a) a strength above a selected threshold and (b) a signal-to- noise improvement above a selected threshold; and providing said interference cancelled signal stream to each demodulating finger signed to each PN offset having at least one of (a) and (b) ([0041], [0042] showing a searcher/tracker module 104).

Claims 80-85 are similar to claims 1-12, 73-74. Therefore, claims 80-85 are rejected under a similar rationale.

Allowable Subject Matter

4. Claims 28-32, 36-38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Olson et al (US 2004/0151235 A1) disclose interference cancellation in a signal.

Vadgama (U.S. Pat. 7,149,200) discloses a CDMA communication network.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAI TRAN whose telephone number is (571) 272-3019. The examiner can normally be reached on 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KHAI TRAN/

Primary Examiner, Art Unit 2611